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- a) deriving a time domain symbol from the plurality of frequency components of the frequency domain symbol;
- b) reducing the frequency content of the time domain symbol by pulse shaping the time domain symbol so as not to interfere with other symbols on other transmission channels;
- c) using the first modem to transmit the time domain symbol on one of the plurality of carrier frequencies of the transmission channel;
- d) using the second modem to receive the time domain symbol on the one of the plurality of carrier frequencies of the transmission channel, and
- e) further reducing the frequency content of the time domain symbol by applying a windowing function to the time domain symbol so as not to interfere with the other symbols on the other transmission channels.

REMARKS

This is a preliminary Amendment in which claims 1-3, 5, 6, 11, 15, and 16 have been amended and claims 17-32 have been added. An early and favorable action is hereby earnestly solicited. If there is a fee occasioned by this response that is not covered by an enclosed check, please charge any deficiency to Deposit Action No. 23/2825.

Respectfully submitted
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By:


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Docket No. S01022/80518 JHM

Date: February 20, 2002

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MARKED-UP CLAIMS

1. (Twice Amended) A telecommunications transmission system having at least two VDSL systems, each comprising a pair of modems, said at least two VDSL systems belonging to a binder group common to [both] the at least two VDSL systems, wherein

- a transmitter in a first modem in [a] the pair of [modem] modems including
 - a extension means (P/S) for [cyklic] cyclic extension of a DMT-symbol by way of adding a prefix or a suffix,
 - a pulse shaper means, adapted to [pulseshape] pulse shape sidelobes of a cyclic extended DMT-symbol, and further
- a receiver in a second modem in [a] the pair of [modem] modems including
 - windowing means adapted to multiplying μ samples at the beginning and end of a block of $2N+\mu$ samples; folding and adding $\mu/2$ samples from the beginning of the $2N+\mu$ block of samples to the end of the $2N$ remaining samples; and folding and adding $\mu/2$ samples from the end of the $2N+\mu$ block of samples to the beginning of the $2N$ remaining samples.
 - a stripping means (s/p) for removing said cyclic extension from a [DTM-] DMT-symbol.

2. (Twice Amended) A telecommunications system, as claimed in claim 1, wherein said at least two modems are Zippermodems [modem is a Zippermodem].

3. (Twice Amended) A telecommunications system as claimed in claim 1, wherein said cyclic extension [comprising] further comprises:

- a suffix which is greater than, or equal to, a channel's propagation delay; and
- a prefix which is greater than, or equal to, a guard time needed to eliminate inter-symbol interference.

5. (Twice Amended) A telecommunications system, as claimed in claim 1, wherein the same number of sub-carriers are used for transmission in [the] an up stream direction as are used for transmission in [the] a down stream direction.

6. (Twice Amended) A telecommunications system, as claimed in claim 1, wherein a different number of sub-carriers are used for transmission in [the] an up stream and a down stream directions.

11. (Twice Amended) A method in a telecommunication system having at least two VDSL systems adapted to [asynchronous] asynchronously transmit [DTM] DMT-symbols between [each pair of] modems; each of the [having] at least two VDSL systems[, each] comprising a pair of modems, said at least two VDSL systems belonging to a binder group common to both VDSL systems, comprising the steps of:

- in a transmitter in a first modem in a pair of modems
- cyclic extend a [DTM] DMT-symbol by way of adding a prefix and a suffix;
- pulse shaping side lobes of the cyclic extended DMT-symbol;
- transmit the cyclic extended and pulse shaped DMT-symbol to a transmission channel;
- and in a receiver in a second modem in the pair of modems
- windowing the [DTM] DMT-symbol which transmits on the transmission channel by way of multiplying μ samples at the beginning and end of a block of $2N+\mu$ samples; folding and adding $\mu/2$ samples from the beginning of the $2N+\mu$ block of samples to the end of the $2N$ remaining samples; and folding and adding $\mu/2$ samples from the end of the $2N+\mu$ block of samples to the beginning of the $2N$ remaining samples, and removing said cyclic extension from a [DTM] DMT-symbol.

15. (Twice Amended) A method as claimed in claim 11, further comprising transmitting the same number of sub-carriers in both an upstream and a down stream direction.

16. (Twice Amended) A method as claimed in claim 11, further comprising transmitting a different number of sub-carriers in [the] an up stream and a down stream direction.